Fadama Crop Farming Enterprise and Poverty Alleviation in Kogi State, Nigeria

Ejima, A.O.[1], Beeior, C.T.[2], Ngyugh, U.[2], and Afatar, S.[2]

[1]Department of Economics Kogi State University, Nigeria.

[2]Department of Agricultural Education, College of Education Oju, Benue State, Nigeria. (Corresponding author's e-beeior4real@yahoo.com

Abstract— *Poverty is an affront to the existence of mankind, which must be fought from all angles. This study examines the impact of Fadama crop farming enterprise on poverty alleviation in Kogi State. Questionnaires were administered to 180 households, 90 each to Fadama crop farming and Non-Fadama farming households in the area. Data was analyzed using the relative poverty index and the logit regression model. The relative poverty index using the so-called P.alpha shows that the non-Fadama farming households had higher values of the various dimensions of the incidence of poverty, P_0, P_1, and P_2, than the Fadama crop farming households while the logit regression analysis with the aid of the SPSS packages revealed that five of the nine variables, namely; farm size, household size, annual income, total expenditure and age of the household heads, were statistically significant at 5% level. The study has identified Fadama crop farming enterprise as a means of economic development and poverty alleviation and therefore recommends the development and proper management of the vast Fadama resources and potential in Kogi State and Nigeria at large, the enhancement of the income base of the Fadama crop farmers through governments' deliberate policies/programmes, the provision/subsidization of Fadama farming inputs as well as education/public enlightenment of the Fadama crop farmers. Finally, suggestions for further studies on the impact of Fadama farming generally on poverty alleviation and the role of other enterprises such as the small scale industries/businesses on poverty alleviation in the study area were proffered.*

Keywords— *Crop Farming and Poverty Alleviation.*

I. INTRODUCTION

Poverty exists in every country of the world but the number of people affected and the degree of severity vary from one country to another. Alegieuno and Attah (2005) noted that "the most hard hit are countries in Sub-Saharan African and South Asia". According to Olaitan (2005), poverty is a widespread social phenomenon affecting 2.8 billion people. He further noted that more than half of the populations of the people in the developing countries (Nigeria inclusive) still live on less than $2 a day while over 1.1 billion of these live on less than $1 a day

In view of the above, eradicating poverty becomes the most important goal of human development and hence research in this area can never be monotonous. Indeed, it is now widely believed that at its core, development must be about improvement of human well-being, removal of hunger, disease and promotion of productive employment for all. A nation's first goal must be to end poverty and satisfy the priority needs for all its citizenry in a way that will not jeopardize the opportunity for the future generations to attain the same objective.

Scholars and administrators alike have argued that Nigerians have no reason to be poor because of the abundance of human and natural resources including oil and gas available in the country. Unfortunately, however, poverty in Nigeria like many African countries is not only widespread but severe and deep (Igue 2005). Faced by the problems of poverty in the country by the past governments, various policies and programmes were put in place to reduce the suffering of the people. For instance, in a bid to reduce poverty, Nigeria, according to the World Bank (2006), has received assistance on 120 projects worth $1.87 billion since 1961 that the country joined the World Bank. One of these projects is the second National Fadama Development project which is a US $100 million project.

It is important to point out at this juncture that the poverty situation in Kogi State is a reflection of the poverty situation in the country. The Federal Government of Nigeria, in the Core Welfare Indicator Questionnaire Survey (2002), carried out in Kogi State identified and classified Kogi State as the poorest of the six states comprising the North-Central Geo-Political zone in

Nigeria. Similarly, the Kogi State Agency for Poverty Reduction (2004), pointed out that more than 2/3 of the population of the state who were engaged in farming and lived in the rural areas, were considered poor as they could not feed themselves adequately; neither do many had access to health facilities, potable water or formal education. Furthermore, the National Bureau of Statistics (2005) pointed out that Kogi State had a poverty incidence and gap of 88.2% and 0.5713, respectively. Considering the 6 States with the highest incidence of poverty in Nigeria, Kogi State by the report ranked the third poorest and one with the highest poverty gap in the country. In an effort to achieve her goal of poverty reduction, the Kogi state government has over the years embarked on a number of projects/programmes such as the Kogi savings and loans scheme to provide soft loans to the small-scale business men as well as the low income groups; Directorate Of Food, Roads and Rural Infrastructure; Kogi State Agency for poverty Reduction; the World Bank Assisted State Fadama Development Programme and a host of others. These efforts are in line with the view of Ogunmola (2010), that the Government has over time initiated and supported different agricultural programmes. To complement these efforts, international bodies and donor agencies have also helped in financing key agricultural projects in Nigeria; one of such projects he added is Fadama Development Programme.

It is worrisome therefore to note that in spite of these various poverty reduction programmes/projects by government over the years, the poverty situation of Kogi State has refused to improve. It is on the basis of this disturbing poverty situation that this study was conducted to examine the impact of the Fadama Crop Farming Enterprise on Poverty Alleviation in the State.

The study's specific objectives are to describe the socio-economic characteristics of fadama crop farmers;assess the incidence of poverty on the farming populace of Kogi State; and examine the relationship between Fadama crop farming enterprise and level or incidence of poverty in Kogi State.

A study of this nature would clearly bring out the benefit associated with Fadama farming enterprises thus providing a wide opportunity for investment to enhance economic development of the people. This study will also help to determine the extent to which Kogi State is contributing towards solving the poverty problem of Nigeria through increased farming activities all year round. This would further justify the use of public funds in the development of Fadama in Kogi State in particular and Nigeria in general. A research of this nature would also provide a basis for further research in development studies, particularly in Fadama farming and its effects on poverty reduction.

II. METHODOLOGY

The study was conducted in Kogi State with Lokoja as its capital.The state is an agrarian state with a large percentage of the population engaged in farming and agro-allied activities as their primary economic activity.The population for this study comprised of Fadama and non-Fadama crop farmers in some selected local government areas(LGAs) in Kogi State."Fadama" a word already adopted by the World Bank refers to the low-lying swampy area consisting alluvial deposits and containing extensive exploitable aquifers. It also refers to as alluvial low lands formed by erosion and depositional actions of the rivers and streams possessing fine texture and less acid soils which make it rich agricultural soil.Put simply, Fadama- the Hausa name for irrigable land are flood plains and low-lying areas underlined by shallow acquifers and found along Nigeria's major river systems. Fadama lands are especially suitable for crop irrigation and fishing, and traditionally provide feed resources and water for livestock. The growth potential of this land is enormous, but only very partially developed. The total Fadama potential of Kogi State for instance, is 230,000 hectares.Some other places that have Fadama land in Nigeria are: the flood plains of Niger, Sokoto-River, Benue, Hadejia-Jama and Yobe rivers. They vary in width from a few hundred metres to as much as twenty hectares stretch and encompass land and water resources that could be developed into irrigated agriculture.

From a total population of 3,278,487, about 17,378 persons representing approximately 2,896 households participated in the Fadama farming enterprise in the state. Since it was not practically and economically possible to study the entire population or households, a total of 180 households were sampled for the study. Six (6) LGAs, two each from each of the three senatorial zones were both purposely and randomly selected.

For the Fadama crop farmers, a list of Fadama Community Associations (FCAs) as well as Fadama Resources users groups (FRUGs) in Kogi State was obtained from the State Fadama Development Office, Lokoja from where functional FRUGs from the FCAs were purposely selected for the study. Purposely because some FCAs though registered were not very functional and so random selection would not achieve a valid result. Fifteen (15) respondents each were sampled randomly from the six (6) purposely selected FRUGs, the sampling of which cut across LGAs with both large and small total membership of Fadama crop farmers. This gave rise to a total of 90

respondents from the group. The same number of respondents (90) was also randomly sampled for the non-Fadama crop farmers from the same area. The two thus gave rise to the desired total sample size of one hundred and eighty (180) respondents for the study.

Data was collected from both primary and secondary sources. The primary data was collected through the administration of structured questionnaires from sampled respondents on their socio-economic characteristics, farm size, family/household size, total production, annual income, total expenditure, etc as at 2013/2014 farming season. The secondary sources includes the Kogi State Fadama development office, National Bureau of statistics, National Population Commission, Central Bank of Nigeria and World Bank records and publications, published and unpublished materials as well as other relevant publications

The data collected for this study was analyzed using both descriptive and inferential statistical tools. The descriptive statistics such as tables and simple percentages were employed for describing the socio economics characteristics of the respondents while the relative poverty line, the Logit regression model and t-test statistics as inferential statistics.

Relative poverty line

This is a measure or threshold that divides the poor from the non-Poor. The conventional approach is to establish a poverty line that delineates the poor from the non-poor (Aigbokhan, 2000).In most poverty analysis, four types of poverty measures are recognised; the relative poverty measure, absolute poverty measure through Food Energy Intake (FEI), a Dollar per Day Measure and Objective Poverty Measure. In whatever approach used, a poverty line is always drawn. The poverty line is the most commonly used and understood poverty indicator in traditional poverty analysis. This of course has become the standard tool of policy makers for poverty monitoring. In a poverty line, people are counted as poor when their measured standard of living falls below a minimum acceptable threshold (Aigbokhan, 2000; Federal Republic of Nigeria, 2005; "National Bureau of Statistics"2005). Whatever methods used to define this threshold, the poverty line remains an arbitrary divider of the poor from the non-poor. According to "National Bureau of Statistics" (2005), a minimum annual expenditure of ₦21, 743.00 per adult on food is required to attain 2,900kcal per day. This expenditure on food constitutes threshold for extreme poverty. Based on the relative poverty measure, the "National Bureau of Statistics" (2005) further gave the average per capita household expenditure to be ₦35,

600.00. The poverty line was based on 2/3 of the figure which is ₦23, 733.00. All persons with per capita expenditure less than this amount (₦23, 733.00) are considered poor, while those equal to or above are non-poor. For the purpose of analysis in this study, this relative poverty measure using ₦23, 733.00 as a benchmark or poverty line was used to separate the poor from the non-poor in the study area.

However, the use of relative poverty line depends on the use of the so called P-alpha measure in analysing poverty. The measure relates to different dimensions of the incidence of poverty, P_o, P_1 and P_2 defined as;

P_o = Head count/incidence: This counts the number of people with expenditure/income below the poverty line.

P_1 = Depth of poverty: This is the percentage of expenditure/income required to bring each individual below the poverty line up to the poverty line,

P_2 = Severity of poverty: This is indicated by giving larger weight to the extremely (core) poor. It is done by squaring the gap between their expenditure/income and the poverty line to increase its weight in the overall poverty measure.

The mathematical formulation for poverty measurement under this approach is derived from Foster, Greer, and Thorbocke (1984) as

$$P\alpha = \frac{1}{N} \sum_{i=1}^{q} \left(\frac{Z-y}{Z} \right)^{\alpha}$$

Where;

Z = the poverty line (₦23, 733.00, i.e. 2/3 of ₦35, 600.00 which is the average per capita household expenditure, NBS, 2005).

y = average daily income available to the ith farmer in Naira,

q = the number of individual Fadama crop farmers below the poverty line,

N = total number of individual Fadama crop farmers in the area in which the individual farmers live,

α = Foster-Greer-Thorbocke (FGT) index which takes on the values of 0, 1 and 2 as defined above.

$\left(\frac{Z-y}{Z} \right)$ = the proportionate short fall of expenditure/income below the poverty line. This quantity is raised to a power of α, the aversion to poverty as measured by the index is also increased.

If α = 0, the FGT becomes

$P_0 = \dfrac{1}{N}q = \dfrac{q}{N}$ which is the proportion of the population that falls below the poverty line. This is called the head count or incidence of poverty.

If $\alpha = 1$, FGT becomes

$$P1 = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{Z-y}{Z}\right)^{1}$$

If $\alpha = 2$, FGT becomes

$$P2 = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{Z-y}{Z}\right)^{2}$$

The Logit Regression Model

A logit model as a probability function uses poverty incidence as a dichotomous dependent variable. The model uses socio-economic variables to determine the factors influencing poverty. Ramakrishma and Demeke (2002) implicitly expressed the model as;

$$P_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_{i1} + \dots + \beta_k x_{ik})}}$$

Where;

Pi = Probability that poverty occurs

β_0 = Constant Term

β_k = Coefficient to be estimated

X_k = For K = 1… 9, which are independent variables

i = ith Observation

Let $Z_i = \beta_0 + \sum \beta_k X_{ik}$

$$\text{Then } P_i = \frac{1}{1 + e^{-z}}$$

As Z_i ranges from $-\alpha$ to $+\alpha$, P_i ranges from 0 to 1 and P_i is non linearly related to Z_i. The logit of the unknown binomial probabilities i.e. the logarithms of the odds, are modelled as a linear function of the X_i. In estimated form, the model is expressed as;

$$\text{Logit } (P_i) = \text{In}\left(\frac{P_i}{}\right) = \beta_0 + \beta_1 X_{i1} + \dots + B_k X_{ik} + u_i$$

The unknown parameters β_i are usually estimated by maximum likelihood. Thus, the model is explicitly expressed as;

$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9$

Where;

Z_i = Poverty Status of ith households

β_0 = Constant term

β_i = (1-9), Vector of the parameters to be estimated

X_1 = Farm size (ha)

X_2 = Household size

X_3 = Net income (₦) per annum

X_4 = Total expenditure (₦) per annum

X_5 = Quantity of crops produced (kg) per annum

X_6 = Age of respondents (years)

X_7 = Sex of respondents (1, if male and 0, if female)

X_8 = Child dependency ratio (ratio of 0-14 years to household size).

X_9 = Educational level of respondents (No formal education = 0, primary education=6; post primary education = 12; and post secondary education = 16).

U_i = Independent distributed error term.

III.   RESULT AND DISCUSSIONS

Descriptive Statistics of the Demographic Characteristics of Respondents.

The descriptive statistics of the demographic characteristic of the respondents is presented in **Table 1** as described in details below:

1.1. Sex: The result showed that 54 (i.e. 85.71%) of the non-poor households were males while 9 (i.e. 14.29%) were females. For the poor households 92 (i.e. 78.63%) were male as against 25 (i.e. 21.37%) females. This analysis showed a predominantly male-headed household.

The reason for this could be lower dependency ratio, where both the male heads and their spouses are both engaged in income generating activities while the female headed households has dependency largely on the head who is either a widow, divorced, separated or single.

1.2. Age: The age distribution of the non-poor households indicates that majority were within the age range of 30-39 and 40-49 years, representing a total of 84.12%. For the poor households, the studies also revealed that majority of the respondents were within the ages of 50-59, 40-49, and 60 years and above, representing 45.30%, 21.37% and 16.24% respectively. This result shows that age has a direct proportional relationship with poverty. The incidence of poverty, especially, in the poor households group weighs more on the household heads within the ages of 50 years and above. This may be a result of the fact that the two age brackets (i.e. 30-39 and 40-49 years) are the most active age of farming activities. These age brackets are at their middle-aged agriculturally productive stage and so are strong with physical strength/ability required to

cope with the daily irrigation and other activities of the Fadama crop farming. This result agrees with the findings of Yusuf (2005) that most farmers are within their active years and can make positive contribution to agricultural production. The absence of the non-poor within the age range of 29 and below could be a result of the fact that a sizeable proportion of those in this age bracket are still young and engaged in other activities as schooling and apprenticeship with their needs met of course by their parents. On the other hand, the small proportion (3.42%) of the poor households within this age bracket (29 and below) may be attributed to those household heads with few or no dependants that would increase their expenditure and by that reduce their welfare level.

1.3. Marital status: The result shows that a high percentage of 74.60% and 81.20% respondents were married in both the non-poor and poor households, respectively. The greater percentage of the married in the non-poor category could be due to the fact that married families would normally have a large family size, hence providing more family labour while the high percentage in the poor household category could be due to the fact that the family heads had to meet the various needs of all the individual members of the family. The result also shows that 15.87% of the non-poor households and 5.98% of the poor households were single. The higher percentage of the singles in the non-poor household category may be a result of the few dependants they have to cater for. Further analysis of the result shows that the divorced/separated and widow/widowers together constitutes a total of 9.52% and 12.82% in the non-poor and the poor household categories, respectively. The high percentage of these groups in the poor household as compared with the non-poor could be attributed to the possibility of single parenthood that could barely provide for the entire household or family members. One other reason could be a result of less opportunity to access farmland to produce enough farm crops for consumption and sales.

1.4. Primary occupation: The result shows that Fadama crop farming constitutes a higher percentage of 68.25% while non-Fadama farming constitutes the remaining 31.75% of those in the non-poor household category. On the other hand, Fadama crop farming constitutes 40.17% of the poor households while the higher percentage of 59.83% is made up of the non-poor Fadama farmers. The higher percentage of the Fadama crop farming in the non-poor household category could be attributed to the additional earnings/income from Fadama farming as well as the higher crop yield occasioned by the all year round nature of production activities.

THE SOCIO-ECONOMIC ATTRIBUTES OF THE RESPONDENTS:

The socio-economic characteristics of the respondents presented in table 2 are studied in this research work to examine their influence on the poverty status in the study area as follows:

2.1. **Farm size:** The result of the farm size among the non-poor households reveals that majority (60.32%) had 2.1-4.0 hectares of land while 31.75% and 7.94% had 2ha and below and 4.1ha and above, respectively. On the other hand, 48.72% of the poor household group had 2ha and below while 43.59% and 7.69% had 2.1-4.0 ha and 4.1 ha and above, respectively. The result indicates that households with large farm size are more likely to be less poor than those with small farm holdings. Okuneye (2007) noted that in an agrarian economy, the land as a unit for agricultural production provides the needed fulcrum upon which sustainable development would blossom.

2.2. Household size: Majority of the non-poor households (i.e. 71.43%) had a family or household size of 4 persons and below. The result also shows that there was no household head with household size of 11 and above persons in the non-poor group. On the contrary, the highest percentage of 40.17% and 34.19%, from the poor household group was found to be in the household with the range of 8-10 and 5-7 persons, respectively. This analysis reveals that household heads with small household size are less likely to be poor than those with large family or household size. Thus, the larger the household size, the higher the likelihood to be poor.

2.3. Annual income: The annual income of ₦151, 000.00 – ₦200, 000.00 was highest among both the non-poor and the poor household groups with 46.03% and 41.88%, respectively. The non-poor households who earn ₦201,000.00 and above constitutes only 42.86%. The result also shows that none of the non-poor households was in the income bracket of ₦50, 000.00 and below and ₦51, 000.00 - ₦100, 000, 00.This may be due to their participation in to Fadama enterprise which had impacted positively on their income level. Among the poor households on the other hand, the next higher percentage of 29.06% earns within the income range of ₦101, 000.00 – ₦150, 000.00. The result shows that high percentages of the non- poor households are in the high income brackets while the reverse is the case with the poor household group. The result thus suggests that household income has a direct impact on poverty alleviation as households with relatively high income enjoy better living standard than those with less income.

2.3. Annual expenditure: The result shows that the non-poor households, has a larger expenditure brackets of

₦151, 000.00 - ₦200, 000.00 and ₦201, 000.00 representing 39.68% each. For the poor household category, majority(35.04%) of the household expended between the expenditure brackets of ₦101, 000.00 – ₦150, 000.00. This was followed by 30.77%, with consumption expenditure of ₦151, 000.00 - ₦200, 000.00. This thus implies that the higher the households' annual expenditure especially on food and non-food items, the higher the likelihood for better standard of living and the less the likelihood for such households to be poor.

2.4. Quantity of own production: The quantity of own production within the ranges of 9,100 - 11,000kg and 11,100 - 13,000kg annually constitute the highest percentage of 38.10% and 31.75% respectively among the non-poor household category. The result shows that none of the non-poor household heads produced 7,000kg or less annually. For the poor households, the highest percentages of 31, 62% and 29.91%, was from the households within the quantity of own production ranges of 7,100-9,000kg and9,100-11,000kg annually. None however produced within the last two quantity of own production brackets of 13,100- 15,000 and 15,100kg and above. This implies that the higher the quantity of own production, the lower the likelihood to be poor.

2.5. Child dependency ratio: The result shows that the highest percentage of 58.73% of the non-poor households has a maximum of two children as dependants. For the poor households on the other hand, the highest percentage of 37.61% and 34.19% had a child dependency ratio of 5 children and 3-4 children. This implies that there islikely to be more poverty among households with higher child dependency ratios than those with low ratios. This implies that the higher the child dependency ratio, the higher the likelihood to be poor.

2.4. Educational status: The result shows that majority of the respondents (38.10%)who are non-pooracquired secondary education.This was closely followed by 30.16% for those who had primary education while tertiary and no formal education constitute 23.81% and 7.94%, respectively. For the poor households, the result shows that most of the people (40.17%) had no formal education. The analysis shows that the percentage of household heads with no formal education is higher with the poor than the non-poor household heads. This implies that, the higher the educational status of the households, the lower the likelihood of poverty.

TEST OF DIFFERENCE OF MEAN OF THE ANNUAL INCOME BETWEEN THE FADAMA CROP FARMERS AND NON-FADAMA CROP FARMERS IN KOGI STATE.

The resultin table 3 shows that 90 Fadama crop farming households has a mean annual income (₦'000) of 191.96 while the 90 non-Fadama Crop farming households has 170.70. This shows a mean difference of 21.26 at 1% level of significance. The result indicates a significant difference in the annual income (t =2.57, $p = 0.01$). This clearly shows that the Fadama crop farming households earn more annual income than their non-Fadama crop farming counterparts thereby reducing their poverty level.

HOUSEHOLDS INCIDENCE OF POVERTY:

Table 4 shows the different dimensions of the incidence of poverty, P_o, P_1, and$p_2$using the Foster-Greer-Thorbocke (FGT) index, to calculate it. The incidence of poverty, P_o was seen to be high with the Fadama as well as the non-Fadama Households with 52.22% and 77.78% respectively. Thisis in consonance with the finding of Federal office of statistics (1999) that "Regions where agriculture is the main occupation have high incidence of poverty". Although the incidence was high in both cases, table 4 shows clearly that it was higher with the non-Fadama households. The depth of poverty or poverty gap (P_1) showed that the non-Fadama households had a deeper poverty gap (P_1) of 0.7629 while the Fadama households had 0.5122.The severity of poverty $(P_2)$was higher (0.7483) among non-Fadama households than inFadama (0.5024).

DETERMINANTS OF POVERTY STATUS OF THE RESPONDENTS IN KOGI STATE

The result in table 5 shows that six (6) of the exogenous variables, namely; farm size, household size, annual income, quantity of own production, sex and education were estimated positive at 0.167, 0.747, 0.346, 0.064, 0.031 and 0.095 respectively. The other variables, viz; total expenditure, age and child dependency ratio had negative values estimated at -0.755, -0.271, and -0.105 respectively.

A further analysis of the result showed that five of the nine regressors, namely; farm size, household size annual income, total expenditure and age were statistically significant at 5%, explaining the variation in the poverty status of the respondent. The positive sign of the variables indicates that a higher value of the variables tends to increase the likelihood for better welfare and thus reduction in poverty status. The negative value of the parameters on the other hand implies that a higher value tends to decrease the probability of better welfare and thus increase in the poverty status of the households.

For instance, Sex has a positive coefficient of 0.031 but not statistically significant at 5% level. The a priori expectation of sex on poverty alleviation is positive because male- headed households are less likely to be

poorer than female-headed households. The reason could be attributed to the fact that male-headed households have more access to land for farming activities and other means of livelihood than female-headed households.

Child dependency ratio shows a negative (-0.105) coefficient but not statistically significant at 5% level. This implies that high dependency ratio of children aged 0-14years could impact negatively on poverty alleviation of the household. This is in line with the a priori expectation of child dependency on poverty alleviation.

The result shows a positive (0.095) coefficient but not statistically significant at 5% level. This is in conformity with the a priori   expectation that education as a social capital, impacts positively on poverty alleviation. This implies that the likelihood for poverty alleviation increases with increase in educational status of the household heads

IV.   CONCLUSION AND RECOMMENDATIONS

The study examined the impact of Fadama crop farming enterprise(dry season farming enterprise) on poverty alleviation in Kogi State, Nigeria. Fadama crop farming enterprise has been identified as an alternative means of poverty alleviation as well as economic development in Kogi State since the incidence of poverty was found to be lesser among the Fadama households than in non-Fadama households. For instance, the depth of poverty or poverty gap (P_1) showed that the non-Fadama households had a deeper poverty gap (P_1) of 0.7629 while the Fadama households had 0.5122.The severity of poverty (P_2) was also higher (0.7483) among the non-Fadama households than in Fadama households (0.5024). These revelations thus imply that the menace and scourge of poverty is more alleviated with the Fadama crop farming than the non-Fadama farming enterprise in the study area.

The regression result indicates that the most important determinants of poverty alleviation among the households in the study area had positive coefficients and includes; farm size, household/family size, households' annual income, quantity of households' own production and educational status of the household head.

The study has identified Fadama crop farming as a means of economic development and poverty alleviation and therefore recommends the development and proper management of the vast Fadama resources and potential in the Kogi State and Nigeria at large, the enhancement of the income base of the Fadama crop farmers through governments' deliberate policies/programmes, the provision/subsidization of Fadama farming inputs as well as education/public enlightenment of the Fadama crop farmers. Finally, suggestions for further studies on Fadama farming enterprise and the role of other enterprises such as the small scale industries/businesses on poverty alleviation in the study area were proffered.

Table 1. Descriptive statistics of the Demographic Characteristics of the Respondents

CHARATERISTICS		NON-POOR HOUSEHOLD		POOR HOUSEHOLD	
		FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
SEX	MALE	54	85.71	92	78.63
	FEMALE	9	14.29	25	21.37
	TOTAL	**63**	**100.00**	**117**	**100.00**
AGE	$\leq$ 29	0	0	4	3.42
	30 – 39	25	39.68	16	13.68
	40 – 49	28	44.44	25	21.37
	50 – 59	9	14.29	53	45.30
	$\geq$ 60	1	1.59	19	16.24
	TOTAL	**63**	**100**	**117**	**100**
MARITAL STATUS	SINGLE	10	15.87	7	5.98
	MARRIED	47	74.60	95	81.20
	DIVORCED/SEPERATED	3	4.76	9	7.69
	WIDOW/ WIDOWER	3	4.76	6	5.13
	TOTAL	**63**	**99.99**	**117**	**100.00**
PRIMARY OCCUPATION	FADAMA	43	68.25	47	40.17
	NON-FADAMA	20	31.75	70	59.83
	TOTAL	**63**	**100.00**	**117**	**100.00**

Source: Field Survey, 2017.

Table 2. Summary of the Socio-Economic Attributes of the Farming Households in Kogi State

Index		Non-poor Households		Poor Households	
		Frequency	Percentage	Frequency	Percentage
Farm size (ha)	≥ 2.0	20	31.75	57	48.72
	2.1 – 4.0	38	60.32	51	43.59
	≤ 4.1	5	7.94	9	7.69
	TOTAL	63	100.01	117	100.00
Household Size	≥ 4	45	71.43	20	17.09
	5 – 7	14	22.22	40	34.19
	8 – 10	4	6.35	47	40.17
	≤ 11	0	0	10	8.55
	TOTAL	63	100.00	117	100.00
Annual income (₦'000)/annum	≥ 50	0	0	1	0.85
	51 - 100	0	0	12	10.26
	101 – 150	7	11.11	34	29.06
	151 – 200	29	46.03	49	41.88
	≤ 201	27	42.86	21	17.95
	TOTAL	63	100.00	117	100.00
Expenditure (₦'000)/annum	≥ 50	0	0	2	1.71
	51 -100	1	1.59	21	17.95
	101 – 150	12	19.05	41	35.04
	151 – 200	25	39.68	36	30.77
	≤ 201	25	39.68	17	14.53
	TOTAL	63	100.00	117	100.00
Child dependency ratio	≥ 2	37	58.73	33	28.21
	3 – 4	18	28.57	40	34.19
	≤ 5	8	12.70	44	37.61
	TOTAL	63	100.01	117	100.00
Educational status	No formal education	5	7.94	47	40.17
	Primary	19	30.16	31	26.50
	Secondary	24	38.10	27	23.08
	Tertiary	15	23.81	12	10.26
	TOTAL	63	101.01	117	100.01
Quantity of own production ('00kg)/annum	≥ 70	0	0	26	22.22
	71-90	12	19.05	37	31.62
	91-110	24	38.10	35	29.91
	111-130	20	31.75	19	16.24
	131-150	6	9.52	0	0
	≤151	1	1.59	0	0
	TOTAL	63	100.01	117	99.99

Source: Field survey, 2017

Table.3 summary of t-test of difference of mean of the annual income between the fadama crop farmers and non-fadama crop farmers in kogi state.

Type of Farmer	No.	Mean (₦'000)	Mean Difference	t	Df	Sig
Fadama	90	191.96	21.26**	2.57	177.98	0.01
Non-Fadama	90	170.70				

Source: Field survey, 2017

Double asterisks (**) = t-test significant at 1% level.

Table.4 Household's Incidence of Poverty

Primary Occupation	Frequency	Percentage (%)	Incidence of poverty (P_0)	Poverty Gap (P_1)	Severity of Poverty (P_2)
Fadama	47	40.17	52.22	0.5122	0.5024
Non-Fadama	70	59.83	77.78	0.7629	0.7483

Source: Field Survey, 2017.

Table.5 Summary of Regression Analysis for Determinants of Poverty Status

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	B	T	Sig.
(Constant)	0.311	0.083	0.000	3.752	0.000
Farm size (X1)	0.035	0.012	0.167	2.888**	0.004
Household size (X2)	0.065	0.009	0.747	7.483**	0.000
Annual income (X3)	0.001	0.001	0.346	2.536**	0.012
Total exp. (X4)	-0.003	0.001	-0.755	-5.842**	0.000
Qty of production (X5)	0.001	0.001	0.064	1.071	0.286
Age (X6)	-0.006	0.002	-0.271	-3.884**	0.000
Sex (X7)	0.018	0.032	0.031	0.559	0.577
Child dep. ratio (X8)	-0.016	0.013	-0.105	-1.179	0.240
Education (X9)	0.004	0.002	0.095	1.599	0.112
R Square (R^2)			0.514		
Adjusted R^2			0.488		

Source: Field survey, 2017.

Dependent Variable: Y – Poverty Status

Double asterisks (**) indicates significance at 5% level

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